CONTENTS

PAGE

RIBEIRO, J. M. C., ROSSIGNOL, P. A. AND SPIELMAN, A. Role of mosquito saliva in blood vessel location 1

BOWEN, M. F., BOLLENBACHER, W. E. AND GILBERT, L. I. *In vitro* studies on the role of the brain and prothoracic glands in the pupal diapause of *Manduca sexta* . . 9

CLAIBORNE, J. B. AND HEISLER, NORBERT. Acid-base regulation and ion transfers in the carp (*Cyprinus carpio*) during and after exposure to environmental hypercapnia 25

EBINA, YOSHIO AND WIESE, KONRAD. A comparison of neuronal and behavioural thresholds in the displacement-sensitive pathway of the crayfish *Procambarus* . . 45

RENAUD, J. M. AND STEVENS, E. D. The extent of short-term and long-term compensation to temperature shown by frog and toad sartorius muscle 57

JOSEPHSON, ROBERT K. Contraction dynamics of flight and stridulatory muscles of tettigoniid insects 77

MILLER, MARK W., BENSON, JACK A. AND BERLIND, ALLAN. Excitatory effects of dopamine on the cardiac ganglia of the crabs *Portunus sanguinolentus* and *Podophthalmus vigil* 97

DAVID, J. A. AND SATTELLE, D. B. Actions of cholinergic pharmacological agents on the cell body membrane of the fast coxal depressor motoneurone of the cockroach (*Periplaneta americana*) 119

MCFARLANE, IAN D. Nerve nets and conducting systems in sea anemones: two pathways excite tentacle contractions in *Calliactis parasitica* 137

HOLLEY, M. C. AND SHELTON, G. A. B. Reversal of the direction of mucus-flow on the ciliated pharynx of a sea anemone 151

LONGLEY, ROGER D. Axon surface infolding and axon size can be quantitatively related in gastropod molluscs 163

MARTINAC, BORIS AND MACHEMER, HANS. Effects of varied culturing and experimental temperature on electrical membrane properties in *Paramecium* 179

PACKARD, GARY C., PACKARD, MARY J. AND BOARDMAN, THOMAS J. Influence of hydration of the environment on the pattern of nitrogen excretion by embryonic snapping turtles (*Chelydra serpentina*) 195

RIKMENSPOEL, ROBERT. Movements and active moments of bull sperm flagella as a function of temperature and viscosity 205

FEDER, MARTIN E. AND WASSERSUG, RICHARD J. Aerial *versus* aquatic oxygen consumption in larvae of the clawed frog, *Xenopus laevis* 231

BIRCHARD, GEOFFREY F., BLACK, CRAIG P., SCHUETT, GORDON W. AND BLACK, VIRGINIA. Foetal–maternal blood respiratory properties of an ovoviviparous snake the cottonmouth, *Agkistrodon piscivorus* 247

MCCROHAN, C. R. Properties of ventral cerebral neurones involved in the feeding system of the snail, *Lymnaea stagnalis* 257

PAGE

THOMAS, M. V. AND MAY, T. E. Active potassium ion transport across the caterpillar midgut. I. Tissue electrical properties and potassium ion transport inhibition . . 273

THOMAS, M. V. AND MAY, T. E. Active potassium ion transport across the caterpillar midgut. II. Intracellular microelectrode studies 293

BREZDEN, B. L. AND GARDNER, D. R. The ionic basis of the resting potentials in a cross-striated muscle of the aquatic snail *Lymnaea stagnalis* 305

GÖRNER, PETER, MOLLER, PETER AND WEBER, WOLFGANG. Lateral-line input and stimulus localization in the African clawed toad *Xenopus* sp.. 315

SACCHI, V. F., HANOZET, G. M. AND GIORDANA, A. α-Aminoisobutyric acid transport in the midgut of two lepidopteran larvae 329

BRODFUEHRER, PETER D. AND FRIESEN, W. OTTO. A sensory system initiating swimming activity in the medicinal leech 341

GRAHAM, JEFFREY B. AND BAIRD, TROY A. The transition to air breathing in fishes. III. Effects of body size and aquatic hypoxia on the aerial gas exchange of the swamp eel *Synbranchus marmoratus* 357

PENNYCUICK, C. J. AND REZENDE, MARCIO A. The specific power output of aerobic muscle, related to the power density of mitochondria 377

WELLS, M. J. AND WELLS, J. The effects of reducing gill area on the capacity to regulate oxygen uptake and on metabolic scope in a cephalopod 393

KATZ, U., DEGANI, G. AND GABBAY, S. Acclimation of the euryhaline toad *Bufo viridis* to hyperosmotic solution (NaCl, urea and mannitol) 403

METCALFE, J. D. AND BUTLER, P. J. Changes in activity and ventilation in response to hypoxia in unrestrained, unoperated dogfish (*Scyliorhinus canicula* L.) . . . 411

BUTLER, P. J. AND WOAKES, A. J. Heart rate and aerobic metabolism in Humboldt penguins, *Spheniscus humboldti*, during voluntary dives 419

HIRANO, MICHIO AND ROME, LAWRENCE C. Jumping performance of frogs (*Rana pipiens*) as a function of muscle temperature. 429

FISHMAN, LENA, PRIMOR, NAFTALI AND ZLOTKIN, ELIAHU. The selective permeability of fleshfly midgut to an orally toxic cobra venom cardiotoxin 441

SHORT COMMUNICATIONS

INGERMANN, ROLF L, TERWILLIGER, ROBERT C. AND ROBERTS, MICHAEL S. Foetal and adult blood oxygen affinities of the viviparous seaperch, *Embiotoca lateralis* 453

BENNET-CLARK, H. C. A particle velocity microphone for the song of small insects and other acoustic measurements 459

MIYAN, JALEEL AHMAD. A method for the neurophysiological study of reflexes elicited by natural statocyst stimulation in lobsters 465

LONDON, J. A. AND GILLETTE, R. Rhythmic and bilaterally coordinated motor activity in the isolated brain of *Pleurobranchaea* 471

NICOLSON, S. W., LOUW, G. N. AND EDNEY, E. B. Use of a ventilated capsule and tritiated water to measure evaporative water losses in a tenebrionid beetle . . . 477